

ABSTRACT OF THE DISCLOSURE

A superconducting cable having at least one phase and having: a) a layer of tapes of superconducting material; b) a tubular element of superconducting material for supporting said layer of tapes, said tubular element having at least one portion made of metallic material, and being in electrical contact with the layer of tapes of superconducting material; c) a cooling circuit adapted to cool the superconducting material to a working temperature not higher than its critical temperature, having a fluid at a predetermined working pressure ranging between a minimum value and a maximum value; wherein the deformation of said tapes of superconducting material, consequent to a temperature variation between the room temperature and the working temperature of the cable is lower than the critical deformation of the same tapes. A predetermined amount of conductive material of resistive type in electrical contact with the layer of superconducting material is present, such that the maximum temperature reached by the superconducting material in case of short circuit is lower than the minimum temperature between the critical temperature of the superconducting material and the boiling temperature of said cooling fluid at the minimum working pressure of said fluid.

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L. L. P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

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